REMARKS/ARGUMENTS

The present amendment is in response to the Office Action dated August 17, 2005. Applicants have filed, herewith, an "Associate Power of Attorney," transferring power to the Practitioners at Customer No. 00109. Applicants have also filed herewith an Information Disclosure Statement.

Applicants direct the Examiner's attention to the Preliminary Amendment filed on November 20, 2003. According to this amendment, Claim 1-9 and 18-27 were pending at the time of the present Office Action dated August 17, 2005. Applicants now base the listing of claims, as presented herein, on the claim set of the Preliminary Amendment filed on November 20, 2003.

Claims 1-9, 18-24 and 26-33 are active in the present application. Claims 1-3, 5, 19, 22, 23 and 26 have been currently amended, and new Claims 28-33 have been added. Claim 25 has been currently canceled, and Claim 10-17 were canceled in the Preliminary Amendment filed November 20, 2003. Support for the amended and new claims can be found throughout the specification and in the original claims. Particular support for amended Claims 1-3, 5, 19, 22 and 23 can be found in the respective original claims. Particular support for amended Claim 26 can be found in original Claim 23 and original Claim 26 (see Preliminary Amendment dated November 20, 2003), and on page 9 of the specification. Particular support for new Claim 28 can be found on pages 2 and 10 of the specification. Particular support for new Claim 29 can be found on page 1 of the specification). Particular support for new Claims 30-33 can be found in original Claims 18 and 25, and on pages 7 and 8 of the specification. No new matter is believed to have been introduced by the amended and new claims.

The specification was amended on page one to reflect the current status of U.S. Application No. 09/830,936, and to clarify this reference to prior applications. The specification was also amended on page 45, as shown above, to correct the mole percentage of hydrogen (in the second reactor). This percentage should read "0.7 mole % H_2," and not "0.018 mole % H_2." Support for the amendment is provided in the reaction parameters listed on page 45, lines 10-17, as follows. The hydrogen feed rate is 364 sccm (standard cubic centimeter per minute, or standard milliliter per minute). At standard temperature and pressure, one mole of hydrogen occupies a volume of 22.4 liters. Thus, 364 sccm of hydrogen corresponds to "0.975 mole

hydrogen per hour." Also, the ethylene feed rate is 8.2 pph, which corresponds to "133 mole ethylene per hour." Therefore, the mole percentage of hydrogen is equal to 0.73 mole percent, or 0.7 mole percent. The corresponding equations, (a)-(c), are as follows: (a){(364 ml H_2/min) x (1 liter/1000 ml) x (1 mole H_2/22.4 liters) x (60 min/hr)}= 0.975 mole H_2/hr; (b){(8.2 lb C_2/hr) x (453.5g/lb) x (1 mole C_2/28 g)} = 133 mole C_2/hr; and (c){(0.975 mole H_2/hr)/(133 mole C_2/hr + 0.975 mole H_2/hr)}= 0.73 mole% H_2. No new matter is believed to have been introduced by the amendments to the specification.

Applicants have also filed herewith an Information Disclosure Statement (IDS). Applicants request that the Examiner acknowledge the references cited in the IDS, by returning to Applicants' undersigned representative a signed, initialed and dated copy of the corresponding PTO/SB/08 sheets.

Claim Rejections under 35 U.S.C. § 102(b) and § 103(a)

The Examiner rejected Claims 1-9 and 21 under 35 U.S.C. § 102(b), as anticipated by, or, in the alternative, under 35 U.S.C. § 103(a), as obvious over, U.S. Patent 4,343,755 to Miller et al. (hereinafter Miller). Applicants respectfully traverse for the following reasons.

Applicants' invention is directed to a shear thinning ethylene/α-olefin interpolymer, having polymerized therein, ethylene, at least one α-olefin monomer, and, optionally, at least one diene monomer. The ethylene/α-olefin interpolymer is characterized by a Processing Rheology Ratio (PRR) of at least four. A PRR of at least four is an indication that long-chain branching is present in the interpolymer (see page 1 of the present specification).

Miller is directed to a process for forming an extrudate (see abstract). Miller does not teach or suggest the invention as now claimed. Contrary to the Examiner's assertion, Miller does not disclose substantially identical processes as to Applicants' processes, and thus, the properties of Applicants' claimed ethylene/α-olefin interpolymer, compositions, etc., cannot be said to be inherent in the ethylene polymers disclosed in Miller. Applicants submit that inherency must flow as a necessary conclusion from the cited art, and not simply as a possible one (see *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981).

Applicants' ethylene/α-olefin interpolymer is prepared in the presence of low levels of hydrogen. In continuous polymerization processes, the catalysts used in the syntheses of the inventive interpolymers can operated at elevated reaction temperatures, which favor the formation of vinyl terminated polymer chains (see page 32 of the present specification). Moreover, Applicants believe that the combination of high ethylene conversions, elevated reaction temperatures, and the substantial absence of hydrogen or very low levels of hydrogen, yields interpolymers with a PRR of at least four (see pages 1 and 32 of the present specification). Such hydrogen levels are less than, or equal to, 0.1 mole percent, based on the amount of fresh ethylene feed and fresh hydrogen feed (see pages 32 and 33 of the present specification). Applicants have shown that such low levels of hydrogen, used in solution polymerizations, produced branched interpolymers with a PRR of 4 or more (for example, see pages 4, 40-44 (Examples 1-3) and 46-48 (Example 5 and Comparative Example A) of the present specification). Thus the lower levels of hydrogen in continuous polymerizations, and in particular, in continuous solution polymerizations, favor the formation of vinyl terminated chains, as opposed to non-reactive saturated end groups (see pages 4, 32 and 44 of the present specification). Vinyl terminated chains may be incorporate into a growing polymer chain to give rise to a long chain branch (see page 32 of the present specification).

Miller discloses polymerizations in the gas phase that use relatively high levels of hydrogen. Miller discloses that hydrogen may be used as a chain transfer agent, and further discloses a broad range for the ratio of ethylene to hydrogen employed, as from zero to two moles of hydrogen per mole of monomer (see column 15, lines 51-55). However, the amount of hydrogen used in the experimental polymerizations (Examples 1-14) range from 0.148 to 0.566 mole hydrogen per mole ethylene (see Table A in column 24, line 54 to column 25, line 14), which corresponds to 12.9 to 36.1 mole percent hydrogen, base on the sum molar amounts of hydrogen and ethylene. Applicants submit that such high levels of hydrogen in the gas phase polymerization should not favor the formation of vinyl terminated chains, and thus, should not favor the formation of long chain branching.

Thus, an interpolymer with a PRR of at least four does not flow as a necessary conclusion from the disclosure in Miller. In addition, one of ordinary skill in the art

would not expect that the polymerization examples, disclosed in Miller, would produce the branched interpolymers of Applicants' claimed invention. Moreover, Miller does not disclose an advantage for using low levels of hydrogen, and the polymerization examples teach away from very low levels of hydrogen. However, Applicants have shown, as discussed above, that low levels of hydrogen, 0.1 mole percent or less, were needed to produce an interpolymer with a PRR of 4 or more (for example, see page 44 and Tables IIC and IID on pages 47 and 48, respectively).

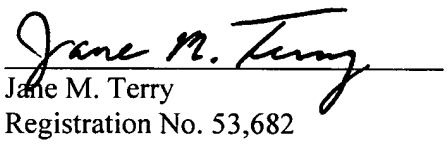
Therefore, for at least the above reasons, Miller does not teach or suggest the invention as now claimed (Claims 1-9, 18-24 and 26-33). In addition, Miller discloses polymerizations using Ziegler-Natta type catalysts, and not constrained geometry metal complex, as required in new Claim 28. Moreover, the ethylene polymers disclosed in Miller contain only one or more C_3 to C_8 alpha olefins (see column 6, lines 58-66), and not a diene monomer, as required by new Claim 29.

Applicants respectfully submit that the present amendment is now in condition for allowance, and request early notice of such action.

If further issues remain, Applicants respectfully request that the Examiner call Applicants' undersigned representative.

Respectfully submitted,

Date: November 17, 2005



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